



US006172955B1

(12) **United States Patent**
Hashimoto

(10) Patent No.: **US 6,172,955 B1**
(45) Date of Patent: **Jan. 9, 2001**

(54) **OPTICAL DISC RECORDING AND REPRODUCING APPARATUS FOR PERFORMING A FORMATTING PROCESS AS A BACKGROUND PROCESS AND A METHOD FOR FORMATTING AN OPTICAL DISC BY A BACKGROUND PROCESS**

(75) Inventor: **Hirokuni Hashimoto, Kanagawa (JP)**

(73) Assignee: **Ricoh Company, Ltd., Tokyo (JP)**

(*) Notice: Under 35 U.S.C. 154(b), the term of this patent shall be extended for 0 days.

(21) Appl. No.: **09/135,588**

(22) Filed: **Aug. 18, 1998**

(30) **Foreign Application Priority Data**

Aug. 25, 1997 (JP) 9-227921

(51) Int. Cl.⁷ **G11B 7/00**

(52) U.S. Cl. **369/58; 369/59; 369/47**

(58) Field of Search **369/47, 48, 49, 369/50, 53, 54, 58, 59, 275.3, 32**

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,513,166 4/1996 Tokumitsu et al.

5,706,271 1/1998 Hashimoto
6,046,968 * 4/2000 Abramovitch et al. 369/59 X

FOREIGN PATENT DOCUMENTS

5-12669A 1/1993 (JP)
5-143997 6/1993 (JP)

* cited by examiner

Primary Examiner—Muhammad Edun

(74) *Attorney, Agent, or Firm*—Dickstein Shapiro Morin & Oshinsky LLP

(57) **ABSTRACT**

An optical disc recording and reproducing apparatus can record data, which is provided in a packet having a fixed length, on an optical disc without waiting for a long time for a completion of a formatting operation. The optical disc is formatted by a formatting process performed as a background process so that another process is acceptable after a start of the formatting process. The formatting process is performed so as to fill at least a predetermined part of a recording area of said optical disc by packets having a fixed length.

21 Claims, 8 Drawing Sheets

